Abstract of the Disclosure

A video guidance sensor system for use, e.g., in automated docking of a chase vehicle with a target vehicle. The system includes an integrated rangefinder sub-system that uses time of flight measurements to measure range. The rangefinder sub-system includes a pair of matched photodetectors for respectively detecting an output laser beam and return laser beam, a buffer memory for storing the photodetector outputs, and a digitizer connected to the buffer memory and including dual amplifiers and analog-to-digital converters. A digital signal processor processes the digitized output to produce a range measurement.